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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,442	03/26/2004	John W. Ketchum	000252C1	8969

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EXAMINER	
CORRIELUS, JEAN B	
ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
04/16/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/810,442	KETCHUM, JOHN W.	
	Examiner	Art Unit	
	Jean B. Corrielus	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30 and 38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,16-21 and 38* is/are rejected.

7)☒ Claim(s) *7-15, 22-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-30 and 38 are objected because of the following informalities: claim 1, last line, "configured **to be** transmitted over a multiple input and multiple output channel" is not a positive limitation since no actual transmission is taken place on the MIMO channel. It is suggested that "configured to be" be deleted. The same comment applies to claim 16, line before last; claim 23, line before last, claim 38, last line. And claim 8, last line. Note that any claim whose base claim is objected is likewise objected.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 16-21, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen US patent No. 7154846 in view of Kim et al US patent No. 7,072,324.

As per claim 1, Chen discloses a method and apparatus fig. 1D comprising supplying an input bit stream to a channel coding block 860; modulating an output of the channel coding block 860 to provide a modulation symbol sequence using modulator 866 feeding the modulation symbol sequence to a plurality of orthogonal sequence covers using demux 870 each of the plurality of orthogonal sequence covers outputs

one of a plurality of spread sequences of output chips see col. 8, lines 16-19. However, Chen does not teach that the plurality of spread sequences are transmitted over a MIMO channel. Kim et al teaches the transmission of a plurality of spread sequences over a MIMO channel see fig. 4 antenna A and B and col. 1, lines 19-32. given that fact, it would have been obvious to one skill in the art to implement such a teaching in Chen in order to improve signal detection because MIMO channel are know to be more resistant multipath and other type of channel effects that if left uncompensated tend to affect signal quality.

As per claim 2, Chen teaches the demux 870 feed the replica of the modulation sequence to each of a plurality of orthogonal sequence covers see 8, lines 16-19.

As per claim 3, see claim 2.

As per claim 4, Chen does not teach that the plurality of covers comprises mutually orthogonal Walsh cover. Kim teaches that the plurality of covers comprises mutually orthogonal Walsh cover see col. 2, lines 54-56. Given that fact, it would have been obvious to one skill in the art to include such a teaching in Chen in order to minimize interference between the codes.

As per claim 5, at col. 8, line 14, Chen teaches that the modulation scheme employed is a QAM modulation Scheme does not explicitly teach trellis coded QAM scheme. However, it is well established in the art to used trellis code in combination with QAM. Given that, it would have been obvious to one skill in the art to use the QAM modulation in combination with trellis code in order to satisfy the requirement of the

system and to take advantage of its enhanced technological feature such as generation of modulated signal with reduce signal to noise ratio.

As per claim 6, Chen teaches a rate of 1/3 or 1/5 instead of using a rate of n-1/n. however, it is well known in the art of coding theory to use a coder having a rate of n-1/n. given that one skill in the art would have been motivated to modify Chen to use a coding rate of n-1/n in order to satisfy coding requirement of the system so as to generate coded signal having a desired coding rate.

As per claim 16, see claim 1.

As per claim 17, see claim 2.

As per claim 18, see claim 3.

As per claim 19, see claim 4.

As per claim 20, see claim 5.

As per claim 21, see claim 6.

As per claim 38, see claim 1.

Allowable Subject Matter

4. Claims 7 and 22, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 8-15, and 23-30 would be allowable if amended to overcome the objection set forth above.

Response to Arguments

6. Applicant's arguments filed 2/18/08 have been fully considered but they are not persuasive. It is alleged that Chen and/or the combination of Chen and Kim does not teach feeding the **same sequence to a plurality of distinct Walsh covers simultaneously** and that it only teaches breaking the incoming symbols into symbols for respective channels and applies to an appropriate Walsh cover. However, it is noted that such limitations is not fully recited in the claim. In addition, the examiner notes that, contrary to the applicant's position, applicant's invention, as further defined in claim 3, clearly teaches that the symbol sequence is broken down into portions by a demultiplexer and a portion (of the symbol sequence as oppose to the whole sequence) is fed into each of the plurality of Walsh covers similarly as in Chen's. For the sake's or argument, Chen reads on applicant's noted claimed feature as broadly claimed because the modulation sequence is feed to a circuit box that includes a plurality of Walsh covers as shown in fig. 1D.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/

Primary Examiner, Art Unit 2611